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Branch et al.

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(54) **BLADDER DRIVEN LINEAR CYLINDER AND ASSOCIATED DEVICES DRIVEN THEREBY**

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See application file for complete search history.

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(57) **ABSTRACT**

An apparatus for manipulating the joint of a patient is provided. The apparatus comprises an actuator and a linkage. The actuator itself comprises: 1) a cylinder portion defining an interior cavity; and 2) an inflatable bladder member at least partially inside the cavity of the cylinder portion. The linkage is operatively positioned intermediate the actuator and the joint of the patient, the linkage configured to be activated and to flex the joint upon inflation of the bladder. A piston portion may also be provided and configured to move relative to cylinder portion within the cavity in response to inflation of the bladder. A patient connection and manipulation device may also be provided within the apparatus and configured to be attached relative to the patient, attached intermediate the linkage and the patient, and configured to at least partially assist with treatment upon activation of the linkage.

33 Claims, 30 Drawing Sheets

